

PATENT  
USSN 09/432,503  
015389-002611US; 018/063c

CLAIM AMENDMENTS

1 to 40. *Cancelled*

41. *(Currently amended)* A method of increasing the proliferative capacity of a mammalian cell, comprising introducing into the cell *in vitro* a recombinant polynucleotide that encodes a telomerase reverse transcriptase protein ~~-, variant, or fragment in SEQ. ID NO:2, or fragment thereof~~ having telomerase catalytic activity when complexed with a telomerase RNA,

~~wherein the polynucleotide hybridizes to DNA having a sequence complementary to SEQ. ID NO:1 at 5°C to 25°C below  $T_m$  in aqueous solution at 1 M NaCl;~~

~~wherein  $T_m$  is the melting temperature of double-stranded DNA having the sequence of SEQ. ID NO:1 under the same reaction conditions; and~~

whereby introducing the recombinant polynucleotide into the cell increases the proliferative capacity of the cell.

42. *(Previously presented)* The method of claim 41, wherein the cell is a human cell.
43. *(Previously presented)* The method of claim 41, further comprising selecting the cell from other cells because it expresses increased telomerase catalytic activity as a result of introducing the polynucleotide.
44. *(Previously presented)* The method of claim 43, wherein the cell is a human cell.
45. *(Previously presented)* The method of claim 41, wherein the polynucleotide encodes a full-length, naturally occurring telomerase reverse transcriptase.
46. *(Previously presented)* The method of claim 45, wherein the cell is a human cell.
47. *(Previously presented)* The method of claim 45, further comprising selecting the cell from other cells because it expresses increased telomerase catalytic activity as a result of introducing the polynucleotide.
48. *(Currently amended)* The method of claim 41, wherein the polynucleotide ~~encodes a telomerase reverse transcriptase having the amino acid sequence of SEQ. ID NO:2~~  
comprises the telomerase reverse transcriptase encoding sequence in SEQ. ID NO:1.

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49. *(Previously presented)* The method of claim 48 wherein the cell is a human cell.
50. *(Previously presented)* The method of claim 48 further comprising selecting the cell from other cells because it expresses increased telomerase catalytic activity as a result of introducing the polynucleotide.
51. *(Previously presented)* The method of claim 50 wherein the cell is a human cell.
52. *(Previously presented)* The method of claim 41, wherein the recombinant polynucleotide is an expression vector.
53. *(Previously presented)* The method of claim 52 wherein the expression vector is an SV40 virus expression vector, an EBV expression vector, a herpesvirus expression vector, or a vaccinia virus expression vector.
54. *(Previously presented)* The method of claim 52 wherein the expression vector is a retrovirus expression vector.
55. *(Previously presented)* The method of claim 52 wherein the expression vector is an adenovirus expression vector.
56. *(Previously presented)* The method of claim 52 further comprising selecting the cell from other cells because it expresses increased telomerase catalytic activity as a result of introducing the polynucleotide.
57. *(Previously presented)* The method of claim 52 wherein the cell is a human cell.

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58. *(Currently amended)*

A method of increasing the proliferative capacity of a mammalian cell, comprising introducing into the cell a recombinant polynucleotide that encodes a telomerase reverse transcriptase protein ~~variant, or fragment in SEQ. ID NO:2, or fragment thereof~~ having telomerase catalytic activity when complexed with a telomerase RNA,

~~wherein the polynucleotide hybridizes to DNA having a sequence complementary to SEQ. ID NO:1 at 5°C to 25°C below  $T_m$  in aqueous solution at 1 M NaCl;~~

~~wherein  $T_m$  is the melting temperature of double stranded DNA having the sequence of SEQ. ID NO:1 under the same reaction conditions; and~~

whereby introducing the recombinant polynucleotide into the cell increases the proliferative capacity of the cell.

59. *(Previously presented)* The method of claim 58, wherein the cell is a human cell.

60. *(Previously presented)* The method of claim 58, wherein the polynucleotide encodes a full-length, naturally occurring telomerase reverse transcriptase.

61. *(Currently amended)* The method of claim 58, wherein the polynucleotide ~~encodes a telomerase reverse transcriptase having the amino acid sequence of SEQ. ID NO:2~~  
comprises the telomerase reverse transcriptase encoding sequence in SEQ. ID NO:1.

62. *(Previously presented)* The method of claim 58, wherein the recombinant polynucleotide is an expression vector.

63. *(Previously presented)* The method of claim 62, wherein the expression vector is a retrovirus expression vector.

64. *(Previously presented)* The method of claim 62, wherein the expression vector is an adenovirus expression vector.

65. *(Previously presented)* The method of claim 62, wherein the cell is an epithelial cell.

66. *(Previously presented)* The method of claim 62, wherein the cell is a keratinocyte.

67. *(Previously presented)* The method of claim 62, wherein the cell is a hair matrix or hair shaft cell.

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68. *(Previously presented)* The method of claim 62, wherein the cell is a hepatocyte.
69. *(Previously presented)* The method of claim 62, wherein the cell is an endothelial cell.
70. *(Previously presented)* The method of claim 62, wherein the cell is a cell of the ciliary epithelium of the eye.
71. *(Previously presented)* The method of claim 62, wherein the cell is a cementoblast, odontoblast, osteoblast, or chondrocyte.
72. *(Previously presented)* The method of claim 62, wherein the cell is a heart cell.
73. *(Previously presented)* The method of claim 62, wherein the cell is a lymphocyte.
74. *(Previously presented)* The method of claim 63, wherein the cell is an epithelial cell.
75. *(Previously presented)* The method of claim 63, wherein the cell is a keratinocyte.
76. *(Previously presented)* The method of claim 63, wherein the cell is a hair matrix or hair shaft cell.
77. *(Previously presented)* The method of claim 63, wherein the cell is a hepatocyte.
78. *(Previously presented)* The method of claim 63, wherein the cell is an endothelial cell.
79. *(Previously presented)* The method of claim 63, wherein the cell is a cell of the ciliary epithelium of the eye.
80. *(Previously presented)* The method of claim 63, wherein the cell is a cementoblast, odontoblast, osteoblast, or chondrocyte.
81. *(Previously presented)* The method of claim 63, wherein the cell is a heart cell.
82. *(Previously presented)* The method of claim 63, wherein the cell is a lymphocyte.
83. *(Previously presented)* The method of claim 64, wherein the cell is an epithelial cell.
84. *(Previously presented)* The method of claim 64, wherein the cell is a keratinocyte.

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- 85. *(Previously presented)* The method of claim 64, wherein the cell is a hair matrix or hair shaft cell.
- 86. *(Previously presented)* The method of claim 64, wherein the cell is a hepatocyte.
- 87. *(Previously presented)* The method of claim 64, wherein the cell is an endothelial cell.
- 88. *(Previously presented)* The method of claim 64, wherein the cell is a cell of the ciliary epithelium of the eye.
- 89. *(Previously presented)* The method of claim 64, wherein the cell is a cementoblast, odontoblast, osteoblast, or chondrocyte.
- 90. *(Previously presented)* The method of claim 64, wherein the cell is a heart cell.
- 91. *(Previously presented)* The method of claim 64, wherein the cell is a lymphocyte.